

RECORDS OF UNCOMMON SOUTHERN AUSTRALIAN MOLLUSCS

By BERNARD C. COTTON,

CURATOR OF MOLLUSCS, SOUTH AUSTRALIAN MUSEUM

Plates vi-vii

The following notes deal with records, localities and new information, gathered over the last few years, concerning some lesser known Southern Australian Molluscs. Two new genera are introduced.

Nautilus repertus Iredale

Plate vi (top)

Nautilus repertus Iredale, 1944; Australian Zoologist, 10, (3), 295-296, text fig.

A. R. Riddle 1920 published a paper entitled "An Adventitious Occurrence of *Nautilus pompilius* Linn, with a Short Bibliography on Ocean Currents affecting the Australian Coast." The *Nautilus* referred to was taken by James Scott of Yorketown at Foul Bay, Southern Yorke Peninsula, opposite what is locally known as the Old Mill. The animal was nearly intact, only small portions having been removed by sea-birds and it was not in an obvious state of decomposition.

This is the only record of *Nautilus* occurring in South Australia, not even a fragment of shell has been seen on our coast, previous to or since this record. Incidentally, no living *Nautilus* has been recorded from anywhere on the Australian Coast, though many shell fragments of *Nautilus alumnus* have been taken on the North Queensland Coast, and that species is presumed to be living in quantity nearby.

Nautilus pompilius Linne, type locality Amboina, is plentiful in certain places on the Indo-Pacific, such as the Philippines, the animals being used as bait and the shells as drinking vessels and as a source of Mother-of-Pearl ornaments by some Pacific Island natives. Quiggin mentions the use of this species by the natives of New Britain who make "lillie", a creamy-white string of *Nautilus pompilius* discs used as shell money.

Riddle, in his summing up, dismissed any possibility of the *Nautilus* having migrated from the West and concluded that "A migration, however, along the warm Notonectian current, which sweeps past the home

of the species and then down the Eastern Coast of Australia, seems more probable. . . . By this medium the migrating *Nautilus* could well arrive at a position East of Bass Strait and Tasmania. How it could then travel westward against the easterly current from the Great Australian Bight must be considered."

Iredale, p. 295 under his original description of *Nautilus alumnus* from Queensland, writes, "There is a record of a living specimen from Yorke's Peninsula, South Australia, A. R. Riddle 1920, which is not acceptable." The incorrect identification of the South Australian shell has thus, again, confused the issue concerning the authenticity of this specimen.

There are strong reasons why the conclusions of Iredale and Riddle are not correct. The shell concerned, which was accidentally broken and repaired years ago, was presented recently to the South Australian Museum by Mr. P. Scott. It is not the Indo-Pacific *Nautilus pompilius* Linne nor is it the still smaller, differently patterned Queensland and New South Wales species *Nautilus alumnus*.

The South Australian example is the large *Nautilus repertus* Iredale, described from South Western Australia. The specimen, D. 14518, is a big one measuring 22.7 cm. x 17.6 major and minimum diameters as recorded by Riddle, approximating to the measurement of the Holotype from Rottnest, South Western Australia, examined by me in the Western Australian Museum in 1949. A shell of a similar size was mentioned in the Adelaide "Advertiser" on December 21st, following the present author's note about Riddle's specimen. This belongs to Mr. William Heslop of Glenelg, S.A. who received it from Cottesloe, Western Australia. One from Bunbury and one from Albany in the South Australian Museum, Verco collection, are typical. Verco 1935, p. 144 records a "*Nautilus pompilius* (*N. repertus*) in Captain Douglas' collection, taken on the beach at Esperance, in the Western Bight" approaching to within 900 miles of the South Australian locality and within the westerly drift. Whitley took a specimen at Pelsart Island, Abrolhos with muscle scar flesh attached. The South Australian record is the only *Nautilus* of any species with the complete animal, known to have been taken off the Australian coast.

From this known range of *N. repertus* it may now be safely presumed that a breeding ground exists off the Western Coast as suggested by Iredale 1944, p. 294, but it is situated probably off the South Western tip of the Continent.

This large species is characterized by the pale and reduced banding which becomes obsolete on the posterior half of the shell. There is no

perforation but a round brown colour patch covers the umbilical region.

All adventitious occurrences of strange species in Southern Australian waters have been definitely identified as of Western Australian origin. In other words the drift is from the West, and there is no drift from the east through Bass Strait.

The following evidence confirms this contention. Weeding 1942, p. 2, remarks, "It has been pointed out that a warm surface current from the Indian Ocean flows along the track of the Southern Ocean cold current and is about 400 miles wide and 250 fathoms deep. This is said to be on the surface at Cape Leeuwin but 150 fathoms below at Cape Northumberland", and the same author, speaking of varietal names applied to Western Australian Chitons, Weeding 1942, p. 1, states "This applies very definitely to those subspecific names introduced for Western Australian variants, for the variations found in these species are found, not only in Western Australia, but often in the bays of the Great Australian Bight and again, to a still greater degree, in Spencer Gulf, South Australia. The marine fauna of the Eastern Gulf Coast of that Gulf shows a definite Western influence."

Other examples of tropical types of Molluscs populating Western South Australia from South Western Australia, among many, not reaching Victoria, are the large Gastropods such as the Baler shell *Melo miltonis* Gray, *Dinassovica jourdani* Kiener and *Cellana laticostata*, all confined to the Flindersian Region, Cotton 1930, p. 219.

Argonauta nodosa Solander is common in South Australia but *Argonauta argo* Linne, the delicate, narrow Paper Nautilus of the Indian Ocean and South Western Australia is extremely rare here. Of 500 Argonauts taken by George Pattison at Troubridge Shoal, S.A., 490 were *A. nodosa* and only 10 were *A. argo* apparently drifted from South Western Australia.

In 1909, Verco, after exploring St. Francis Island, wrote in his manuscripts:—

"The following notes give evidence of Western drift in the Great Australian Bight. The circumstances were related to me by Lloyd and Arnold of St. Francis Island.

- a. On the west side of Dog Island, lying near St. Francis Island to the North of Petrel Bay, can be seen a large iron buoy which drifted from its moorings in Albany, W.A. Captain Weir of the "Governor Musgrave" tried to tow it off but it was too firmly embedded and heavy.
- b. A cargo boat belonging to the "Eclipse" in Esperance Bay, W.A., got adrift and was found by Lloyd beached in Smoky Bay.

- c. A teak log with the British Government brand on it, and supposed to have come from Burma was found by Lloyd stranded on the south side of Goat Island."

Verco concludes: "The current is said to flow eastward from the Leeuwin some distance south of St. Francis Island and to cause an eddy which comes up from the South East away to the East of St. Francis Island in the summer time. In winter the stray north westerly winds cause a current setting from the West in the Bight."

As Riddle 1920, p. 260 correctly remarks, in connection with the unique *Nautilus* "Its position on the Western side of the Bay, however, suggests a westerly drift."

Charonia powelli sp. nov.

Plate vi (lower)

Shell large, fusiform, varices strongly formed and nodular, situated at about every one and a quarter turns and undulating the suture and giving a distorted appearance to the sculpture of spaced spiral heavily nodular ribs, about five between the centre of the body whorl and the angular shoulder formed by the most developed ridge. The heavy ridges have smooth, weak spiral riblets in the interstices. Colour bright yellowish to nut brown, maculated with dark brown and white on the nodules. Spire rather short and narrow. Aperture ovate, distinctly channelled above and below, the anterior canal somewhat recurved. Outer lip a little expanded, with teeth in groups of three, two, or single, light brown coloured. Columella concave, inflexed towards the canal, three plaits at the top, wrinkled anteriorly. Holotype. Height 167 mm., width 85 mm. S.W.A., Ellenbrook, D. 14517.

Remarks. This rather rare shell living in the Flindersian region of Southern Australia, has been recognised by collectors for many years as a species, distinct from *Charonia rubicunda* Perry 1811 (*Septa*) of New South Wales, though it has remained unnamed. *Charonia powelli* differs from the deeper water species *Charonia euclia* Hedley 1914 in being much more robust and having strong nodular sculpture, wider body whorl and shorter spire.

It can, however, attain to quite a large size, one cited by Cotton, 1945, p. 258 being 210 mm. in height. The present species is quite distinct from *Charonia rubicunda* Perry 1811, which inhabits the Eastern coast of Australia and *Charonia instructa* Iredale 1929 from deeper waters of the same area.

The genus *Charonia* Gistel 1848, type species *Murex tritonis* Linne 1758 has as synonyms *Tritonidea* Lamarck 1807 not Muller 1776, *Triton*

Montfort 1810 not Linne 1758 and *Eutriton* Cossmann 1904. *Charonia powelli* is named after the well known New Zealand Conchologist, A. W. B. Powell, Assistant Director of the Auckland Museum.

Notovoluta kreuslerae Angas

Voluta kreuslerae Angas, 1865; Proc. Zool. Soc., Lond., 55.

This rare Volute has been taken from craypots in Encounter Bay and records from Investigator Strait, Middleton, Yankalilla, St. Francis Island, Port Elliott, Capé Borda, 55 fathoms. Tunk Head 16 fathoms, Backstairs Passage 22 fathoms, Newland Head 20 fathoms and Porpoise Head 12 fathoms were mentioned by Cotton 1946, p. 16, where a few details of the animal were given. Two from Newland Head in the collection of Peter Wearne each measure 102 mm. in length and a third one collected by him at Victor Harbour measures 83 mm. in length.

Cottonia dannevigii Verco

Scaphella dannevigii Verco, 1912; Trans. Roy. Soc., S. Austr., 36, 225, pl. 13, fig. 1-3.

The first specimen of this species taken in South Australia and the only one in the Museum collection is a dilapidated broken shell D. 816 lacking the whole of the last whorl, dredged by Verco, 1896, off Newland Head, 20 fathoms.

A large and good specimen is in the collection of Peter Wearne taken by Cain Rumbelow, 1953 Encounter Bay, in craypot, 12 fathoms. This second South Australian specimen is light yellowish-brown with the typical white band around the upper middle of the body whorl, and measures 160 mm. in length.

A young example, 89 mm. in height, taken in a craypot at Corny Point is in the J. Turnbull collection.

A further juvenile specimen measuring 89 mm. ($3\frac{1}{2}$ inches in length) with a portion of the protoconch present closely resembling that of *Mamillana mamilla* was taken by Robert Hall in March 1954 off Seal Rock, one mile South-East of Victor Harbour at 14 fathoms, from a craypot. The typical white band is again present. An exceptionally good example of *Voluta exoptanda* was taken in another craypot at the same time, place and depth.

The holotype of this species was dredged by the "Endeavour" in 77-105 fathoms, 90 miles west Eucla, Western Australia, together with eight further examples recorded by Verco (8) p. 226. Neither holotype of *Cypraea umbilicata armeniaca* Verco, nor *Scaphella dannevigii* Verco are in the South Australian Museum Collection. They were, according to Verco,

sent to the Australian Museum from his collection. On the back of a tablet bearing cuttings from the plate of *Nassaria torri* in this publication, Verco wrote, "The original of this shell is in the Federal Museum (in charge of the Australian Museum, Sydney) sent there by Dr. Verco after being described and figured in the Trans. Roy. Soc. S. Austr., 1912."

Mamilla mamilla Gray

Voluta mamilla Gray, 1844; Sowerby's Thes. Conch. 1, p. 207, pl. 50, fig. 57-58.

A juvenile dead shell in bad condition, taken at the Murray Mouth is the first record of this species from an exact locality in South Australia.

Umbilia hesitata armeniaca Verco

Cypraea umbilicata armeniaca Verco, 1912; Trans. Roy. Soc. S. Austr., 36, p. 211, pl. 10, fig. 1-3.

Mr. C. F. Kurtze of Portland has handled 2,000 shells of this once "rare" species, all trawled at 60-80 fathoms, Bass Strait near Cape Everard, Victoria during the last two years.

These specimens are a little darker than New South Wales examples. Some 6% approximated to the Flindersian variant *Umbilia hesitata armeniaca* in having the "apricot-yellow" base. About 5% are the miniature *Umbilia hesitata beddomei*—previously only recorded from New South Wales, but there are intermediate forms grading in size and shape into typical *Umbilia hesitata*.

Altivasum flindersi Verco

Latirus aurantiacum Verco, 1895; Trans. Roy. Soc., S. Austr., 19, 89-90, pl. 2, fig. 1, 1a, not Montfort 1810.

Altivasum flindersi Verco, 1914; Trans. Roy. Soc., S. Austr., 38, 484.

The holotype D. 13515, dredged in 18½ fathoms Backstairs Passage, is an immature living individual.

Later, two further specimens were dredged by Verco off Newland Head in 22 fathoms. The smaller living one measured 57 mm. in height and the larger dead one 86 mm. in height. Cotton 1945, p. 13, recorded a large specimen taken by W. Bowden at Cape Borda, 15 fathoms, September 2, 1946, and now finds that the specimen, housed in Mrs. E. R. Sims collection, measures 97 mm. in height. A still larger specimen taken by Bowden at Cape Borda and in the same collection measures 127 mm. in height. A shell in the collection of Mrs. L. A. Elliott, taken by her on Middleton beach, measures 50 mm. in height. The best and biggest specimen of all measuring 145 mm. in height, taken in a craypot at Corny Point, is in the J. Turnbull collection. In the same collection I identified

a perfect example of a rare volute *Iredalina aurantia* Powell dredged in New Zealand waters. There is only one living specimen recorded and all others are dilapidated examples.

***Xenophora flindersi* Cotton & Godfrey**

Onustus flindersi Cotton & Godfrey, 1938; Rec. S. Austr. Mus., 6 (2) 205.

The holotype specimen D. 13615 came from St. Francis Island, 15-20 fathoms and measures 18 mm. in diameter.

Three smaller specimens taken with the holotype are also in the Museum collection. Verco, 1909, p. 270, first recorded these specimens under the name of *Xenophora tatei* Harris 1897, a Miocene fossil from Muddy Creek, measuring 44 mm. in major diameter and *X. tatei* like many Tertiary fossils from Southern Australia, so closely resemble the recent forms as to suggest that many now living are Miocene persistent species.

Fortunately a series of six living specimens was dredged in January 1956 by David Howlett and Peter Wearne in the type locality. The largest individual measures 47 mm. across. The recent shell is more delicate and less strongly sculptured than the fossil which has, as Verco says, a wider umbilicus.

***Bothriembryon barretti* Iredale**

Bothriembryon barretti Iredale, 1930; Vict. Naturalist, 47, p. 119, fig. in text.

In the Malacological Society of Australia, Newsletter, Jan. 1957 gives a most interesting record of this species found between Madura and Balladonia on September 18th, 1956. The ground was strewn with white epibragms and some still adhered to the foot of the animal.

***Strangesta gawleri* Brazier**

Helix (Zonites) gawleri Brazier, 1872; Proc. Zool. Soc., 618.

This native snail originally described from the Mount Lofty Ranges was thought to be confined to the higher parts of that area. Mr. H. M. Cooper took many specimens alive at Stony Creek, Wilmington, 1,200 feet above sea level on August 21, 1955 following a very wet winter when water was accumulated in patches on the surface. He again took the species on August 28th, 1955 at Mount Remarkable. Specimens of this carnivorous snail placed in his garden at Glencig are still alive a year later when a very wet winter was again experienced.

***Bothriembryon mastersi* Cox**

Bulimus mastersi Cox, 1867; Proc. Zool. Soc., 39.

The South Western Australian genus *Bothriembryon* extends across the Nullarbor plains represented by the species *B. barretti* Iredale.

At Port Lincoln *B. angasianus* Pfeiffer is found, a peculiar colour banded species and also *B. mastersi*. H. M. Cooper took *B. mastersi* in quantity alive at Streaky Bay and I took it alive at Moonta Bay, on the west coast of Yorke Peninsula and dead shells further south at Corny Point. *B. decreseensis* Cotton was described from Cape Cassini, Kangaroo Island and represents the South Eastern limit of the genus. It has not been recorded from the East coast of Yorke Peninsula.

Family Melanellidae

Melanella Bowdich 1882. Type species *Melanella dufresnii* Bowdich = *Melaniella* P. Fischer 1887 = *Eulima* Risso 1826.

The distinguishing feature separating the Melanellidae from the Styliferidae is the possession of an operculum by the former and the lack of it by the latter: Following Laseron's work a revised list of Flindersian species is given here with certain genera tentatively allotted to the family Styliferidae.

Eulimaustra Laseron 1955. *Eulima proxima* Sowerby.

augur Angas 1865. *Eulima*. S.W.A., S.A. (type), Tas., Vict.

orthopleura Tate 1898. *Eulima*. S.W.A., S.A., Holdfast Bay (type, D. 13463) Tas.

murrayae Cotton & Godfrey 1932. *Eulima*. S.W.A., S.A., Gulf St. Vincent, 10 fathoms (type, D. 10630).

planicincta Cotton & Godfrey 1932. *Eulima*. S.W.A., S.A., Gulf St. Vincent, 10 fathoms (type, D. 10635).

edwardsi Cotton & Godfrey 1932. *Eulima*. S.W.A., S.A., Cape Borda, 55 fathoms (type, D. 10634).

mayi Tate 1900. *Eulima*. S.W.A., S.A., Tas., Swansea (type, D. 13462), Vict.

tryoni Tate & May 1900. *Eulima*. S.W.A., S.A., Tas. (type), Vict.

inflata Tate & May 1900. *Eulima*. S.A., Tas. (type), Vict.

tenisoni Tryon 1886. *Eulima*. S.W.A., S.A., Tas. (type), Vict.

gradata Cotton & Godfrey 1932. *Eulima*. S.W.A., Ellenbrook (type, D. 10634), S.A.

immaculata Pritchard & Gatliff 1900. *Stylifer*. S.A., Vict. (type).

articulata Sowerby 1834. *Eulima*. S.A., Vict., N.S.W. (type).

roegerae Cotton & Godfrey 1932. *Eulima*. S.A., Cape Borda, 55 fathoms (type, D. 10629).

cunaeformis May 1915. *Eulima*. S.A., Tas. (type).

australiensis Thiele 1930. *Strombiformis*. N.W.A., S.W.A.

montebelloensis Iredale 1914. *Eulima*. N.W.A.

montageuana Iredale 1914. *Eulima*. N.W.A.

- modesta* Thiele 1930. *Melanella*. N.W.A., S.W.A.
helena Thiele 1930. *Melanella*. N.W.A., S.W.A.
elsa Thiele 1930. *Melanella*. N.W.A., S.W.A.
- Chryseulima* Laseron 1955 *Stylifer brazieri* Angas.
brazieri Angas 1877. *Stylifer*. S.W.A., S.A., Tas., Vict., N.S.W.
 (type).
expansilabra May 1911. S.W.A., S.A., Tas. (type), Vict.
 Laseron 1955, p. 87, in a valuable revision of these mostly parasitic species, mentions that the shell figured by May, 1923, pl. 45, fig. 11 from Tasmania is not *Eulima munita* Hedley 1903 (*Eulimoda*). He regarded it as possibly an undescribed species. It has been named, however, by May himself as *Eulima expansilabra* from Cape Pillar 100 fathoms. Cotypes of both species are in the South Australian Museum collection and the difference between them had been pointed out in 1932 by the present author when specimens were recorded from Cape Jaffa, Beachport, Neptune Islands, at 104 to 300 fathoms. Specimens have since been recognised from Hopetoun, King George Sound and Port Phillip, Victoria. There seems to be no authentic record of *Eulimoda munita* from the Flindersian region though it has been included in check lists.
- Curveulima* Laseron 1955. *Curveulima cornuta* Laseron.
commensalis Tate 1898. *Eulima*. S.W.A., S.A., Holdfast Bay (type, D. 13461), Vict., N.S.W.
indiscreta Tate 1898. *Eulima*. S.W.A., S.A., Holdfast Bay (type, D. 14196).
triggi Cotton & Godfrey 1932. *Melanella*. S.W.A., S.A., Cape Jaffa, 90 fathoms (type, D. 10633).
petterdi Beddome 1882. *Eulima*. S.W.A., S.A., Tas. (type), Vict., N.S.W., Q.
edwardsi Cotton & Godfrey 1932. *Melanella*. S.W.A., S.A., Cape Borda 55 fathoms (type, D. 10634).
- Cuspeulima* Laseron 1955. *Leiostraca acutissima*. Reeve.
acutissima Reeve 1886. *Leiostraca*. S.W.A., S.A., Vict., N.S.W. (type) = *Leiostraca lesbia* Angas 1871.
lodderae Hedley 1903. *Leiostraca*. S.A., Vict., Tas., N.S.W. (type) Q. = *Eulima vilrea* Adams.
williamsi Cotton & Godfrey 1932. *Strombiformis*. S.W.A., S.A., Cape Borda 55 fathoms (type, D. 1063).
broadbentae Cotton & Godfrey 1932. *Strombiformis*. S.W.A., S.A., Cape Borda 55 fathoms (type, D. 10636).
joshuana Gatliff & Gabriel 1910. *Leiostraca*. S.W.A., S.A., Tas., Vict. (type).

- bivittata* H. & A. Adams 1853. *Leiostraca*. S.W.A., S.A., Philippines, Soo Loo Sea (type) = *Eulima bilineata* Adams & Reeve.
- Fusceulima* Laseron 1955. *Fusceulima jacksonensis* Laseron 1955. *brunnea* Tate 1887. *Stylifer*. S.W.A., S.A., Vict. (type). Parasitic on the periproct. of *Stronglylocentrosus*, a sea urchin.
- Hebeulima* Laseron 1955. *Leiostraca inusta* Hedley 1906. *perexiguus* Tate & May 1900. *Rissoa*. S.A., Tas. (type), Vict. *fricata* Hedley 1907. *Eulima*. S.A., Vict., N.S.W. (type).

Family Styliferidae

- Stylimella* Laseron 1955. *Stylifer lodderae* Petterd 1884. *lodderae* Petterd 1884. *Stylifer*. S.A., Tas. (type), Vict., N.S.W. *petterdi* Tate & May 1900. *Stylifer*. S.W.A., Cottesloe, S.A., Tas. (type), Vict., N.S.W.
- Syntharella* Laseron 1955. *Eulima topaziaca* Hedley 1908. *topaziaca* Hedley 1908. *Eulima*. S.A., Tas., Vict., N.S.W. (type).
- Stylapex* Iredale 1925. *Stylapex lactarius* Iredale 1925. *laseroni* sp. nov. Laseron 1955, p. 100, pointed out that the Tasmanian species figured in May, Illustr. Index Tasmanian Shells, pl. 45, fig. 24, No. 999 as *Stylifer brazieri* Angas 1877 is not that species but an undescribed one. It is here named *Stylapex laseroni* sp. nov. and May's figure cited as Holotype.
- Hypermastus* Pilsbry 1899. *Hypermastus coxi* Pilsbry 1899. *mucronatus* Reeve 1866. *Eulima*. S.W.A., S.A., Tas., Vict., N.S.W. (type). *georgiiregis* Cotton & Godfrey 1932. *Eulima*. S.W.A., King George Sound (type, D. 10631), S.A.

Genus *Granata* nov.

Shell ear-shaped, spire small, aperture oblong, oblique, nacreous; outer lip thin. Sculpture of close, equal, spiral, granular cords. Operculum horny, multispiral. Animal resembling that of *Trochus* but without lateral filaments. The general anatomy and radula is closely related to that of *Euchelus*, but the animal is large and not capable of being contained within the shell.

Type species: Stomatella imbricata Lamarck.

Remarks: It has been usual for authorities to take Gray's designation of *Stomatella imbricata* Lamarck as the type species of *Stomatella* Lamarck (Rafinesque) 1815, but Anton 1839 designated *Stomatella auricula* Lamarck 1818, from Southern Australia as type species of *Stomatella*. *S. auricula* is closely allied to *Stomatella planulata* Lamarck 1818, the type species of *Gena* Gray 1842, from the Indo-Pacific.

It therefore becomes necessary to introduce the new genus *Granata* for *Stomatella imbricata*. This genus is contained in the family Trochidae, subfamily Margaritinae though it seems that the *Granata*, *Herpetopoma*, *Euchelus*, *Danilia*, group is somewhat different from the typical *Margarites* group.

The genera *Stomatella*, *Gena*, *Stomatia*, *Pseudostomatella*, *Broderipia*, *Roya*, are quite distinct and belong to the Family Stomatiidae sometimes placed as a subfamily Stomatiinae of the Trochidae.

Genus *Notomella* nov.

Entomella Cotton, 1945; S. Austr. Naturalist, 23 (2), 14.

Type species: Emarginula candida Adams 1851.

The name *Entomella* is preoccupied by Cossmann 1888. This was pointed out to me by Myra Keen of Stanford University who asked that a substitute be supplied. The above name is to be incorporated in a revision of the Fissurellidae by Grace Johnson in the Treatise on Invertebrate Paleontology, edited by Raymond C. Moore, printed by the Geological Society of America, University of Kansas Press.

Equichlamys bifrons Lamarck

Chlamys bifrons Lamarck, 1819; An. S. Vert., 6, 164.

Reference was made, Cotton 1954, p. 168 to the presence of this edible "Queen Scallop" washed up on the beach, South of Outer Harbour. An acre of this species lives off the South Bank of the Outer Harbour, whence came examples recently donated to the Museum by Robert Hall. The shells are encrusted with sponges and usually have clusters of the Southern Slipper Limpet *Zeacrypta immersa* and an occasional *Capulus australis* attached to the valves. They are fixed to the sea bed debris at a depth of 10 to 20 feet below low tide and are immobile except in the young stage. Similar beds occur off Stansbury, Normanville, Yankalilla Bay, Backstairs Passage, Kangaroo Island at American River off Point Marsden and in Coffin Bay. Dredging off Point Marsden, Verco 1935, p. 64, wrote "Our dredge was thrown over in eighteen fathoms and brought up living and dead scallops, and in this country we worked until 4.30 p.m., passing over many miles of water. This revealed how immense must be the tracts thickly inhabited by these bivalves."

The three species *Notovola alba*, *Equichlamys bifrons* and *Mimachlamys asperimus* were taken in quantity and Verco continues "As for dead shells of these Scallops, they would have to be measured by the ton." Little investigation has so far been made as to the commercial possibilities of these Scallops though the Scallop industry of Tasmania is next in size to the Oyster industry.

Anadara trapezia Deshayes

Plate vii

Arca trapezia Deshayes, 1840; Mag. Zool., 21.

This dominant bivalve fossil of our Mid-Recent stranded beaches is found in numbers around Murat Bay, Port Wakefield, Outer Harbour, Yorke Peninsula near Ardrossan, inside the stranded beach dunes to the southwest of South Australia and at Port Augusta in quantity on the surface and from bores sunk to test foundations for the new power house.

Although many specimens are found joined, having died *in situ*, a quantity of valves also occur on the surface. A strange circumstance in connection with the odd valves is that at several places where they have been counted in a marked area, the percentage of left valves is about 60% and the right 40% of the total taken.

Mr. H. M. Cooper, who has collected many hundreds of these shells, meticulously counted those on an area at Port Augusta Power Station. Of 282 specimens picked up only 112 were right valves. A similar proportion of odd valves existed at Port Augusta West, Port Wakefield and Streaky Bay.

Valves have been picked up on native camp sites such as at Moana, Ardrossan, Port Wakefield and Port Augusta West, but their presence on these sites suggest that they have been transported by the aborigines for use as implements. One valve has been found near Lake Torrens.

The extreme western point at which specimens have been taken alive in Victoria is Port Phillip, according to paired shells with periostracum attached sent to the South Australian Museum by Gatliff some forty years ago. Another living series sent by Gabriel some time ago are from Western Port.

Mr. Richard Plant of Cowes, Phillip Island, recently reported four large colonies of *Anadara trapezia* living in shallow water in Western Port Bay, near Churchill Island, Reid's Bight (two) and Rhyll. While kindly forwarding specimens he mentioned that they were found living in mud in the vicinity of *Katelysia scalarina* the cockle which is so plentiful at the Outer Harbour, South Australia.

In the Malacological Club of Victoria, Newsletter, Vol. 4, No. 14, June 30th, 1956, it is mentioned that a member, Robert Burns, had taken eleven live specimens at Port Arlington, near Geelong. These localities are considerably further south than the Mid-Recent beds of South Australia and suggests that if the species were introduced to our State and placed in suitable localities it may repopulate our waters.

Incidentally, there is a single valve with ligament intact in the Museum collection taken many years ago by Walton and Matthews at Levens, Yorke Peninsula. This is undoubtedly a fortuitous occurrence.

***Ostrea sinuata* Lamarck**

Ostrea sinuata Lamarck, 1819; An. S. Vert., 6, 208.

Lamarck gave the locality "les mers de la Nouvelle Hollande". This is undoubtedly the South Australian Port Lincoln or so-called Mud Oyster and Port Lincoln has since been designated as type locality.

The species is identical with *Ostrea angasii* Sowerby 1871 from New South Wales where it is now extinct. During the last ten years there has been a noticeable increase in the size of natural beds and in the number of Port Lincoln oysters washed up on the local beaches. Off the artificially cut outlet from the Torrens River Swamps to the sea at Henley Beach South a considerable number of oysters may be picked up on the beach after heavy squalls which appear to have become more frequent during the last ten years. Heavy beach scouring, first recorded in 1949 off Broadway, Glenelg has again taken place this year during June, July and August. During August of this year quantities of oysters were taken attached to *Pinna dolabrata* and many such smooth attachment areas. A smooth worn motor tyre was covered with half-grown oysters and other smooth surfaced debris washed down through the outlet was similarly covered. The Sea Gull (Silver Gull) are keen competitors with the human collectors.

Verco, in manuscripts, recorded many localities for this Oyster. S.A., Kangaroo Island, Eastern Cove, American River, Streaky Bay, Dredged Beachport 110 fathoms, Eastern Cove 11 fathoms, St. Francis Island 20 fathoms, Black Point, Yorke Peninsula 5 fathoms, Gulf St. Vincent 7 fathoms, Backstairs Passage 20 fathoms, Investigator Strait 20 fathoms, Ardrossan 8 fathoms, Cape Jaffa 130 fathoms, W.A. Albany, Hopetoun, King George Sound, dredged Great Australian Bight 30 miles west of Eucla 84-96 fathoms.

A large and old specimen measuring 170 mm. in diameter and 90 mm. in thickness across the two valves has a label attached, reading: "Mammoth Oyster, dredged in Dutton Bay, August 1912. Its age is estimated at 15 years. Presented by Mr. W. G. Randall, Chief Inspector of Oyster Fisheries." A still larger but younger example is 175 mm. (nearly 7 inches) in diameter and is labelled: "This oyster shell with the living fish was detached from a pile of the Port Victor Jetty. Mr. W. G. Randall who presented it estimated the age at about 10 years."

There are a number of further specimens in the collection closely approaching these in size.

***Saxostrea australis* Lamarck**

Ostrea australis Lamarck, 1819; An S. Vert., 6, 209.

This species, originally described from King George Sound, Western Australia was recorded by me living, from Coffins Bay and St. Francis Island. Further evidence of this Rock Oyster living in South Australia is now to hand. On August 11th, 1934 a well-known collector, Charles A. Anderson of Kingscote wrote "We have two kinds of oysters here, one is the Mud oyster and the other is a thin paper shelled one, in shape like the Sydney Rock."

Tate 1887 writes "The Sydney Rock Oyster (*O. glomerata* Gould) so largely imported as food is not indigenous in our waters (S.A.) but it has lately been introduced, so I have been informed, to the Port Lincoln district".

Verco, in his manuscripts, refers to odd occurrences of *O. glomerata*, *O. imbricata*, *O. mordax* in various places in South Australia.

It is possible that these accounts refer to *Saxostrea australis* in South Australia. The only authentic record of the introduction of the Sydney Rock Oyster *Ostrea commercialis* seems to be that relating to those brought in and cultivated for a few years at Osborne on the Port Adelaide River by the Adelaide Oyster Company Limited, in 1934. The project was abandoned.

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